Statistics.gov.scot Improvement Project – Report on Alpha User Research

December 2025

Scottish Government
Riaghaltas na h-Alba

Table of Contents

Summary of Alpha user research and recommendations

This programme of user research is part of the Users Workstream of the Statistics.gov.scot Improvement Project – Alpha. This Alpha phase follows on directly from the Discovery phase. For the purposes of clarity and continuity, this report follows a similar structure to the Discovery report. Following this summary is an overview of the user research, including methodology, before the findings and recommendations are presented. The next sections offer further detail of the user testing sessions. Appendices A-C respectively contain the user journeys considered for testing, the scripts used for testing, and the resulting catalogue of user needs.

The overall purpose of the Alpha Users Workstream was to understand how the service could be improved to better address the needs and expectations of the service's current and potential user base, through testing a set of redesigned Open Data Portal prototypes (Cobalt and Emerald) and data publishing platforms (CKAN Admin and a Workflow Manager prototype).

The user research primarily involved two rounds of one-on-one usability testing sessions with 29 participants from various backgrounds, and with a range of accessibility requirements. Participants included statisticians, analysts, policy advisers, data publishers, commercial users, and citizens with varying interest in data and statistics. Complementing this largely qualitative, moderated research approach was a largely quantitative, unmoderated approach, being a questionnaire including an established measure of usability (the System Usability Scale). This received 21 responses, resulting in 50 in total.

Analysis of the data indicates that the new designs are well-regarded, welcome improvements on the current systems, with Cobalt and Workflow Manager broadly seen as the more user-friendly prototypes of the four.

In summary, for an Open Data Portal, Users want:

- minimal jargon and plain-English labelling wherever possible
- efficient, intuitive, accessible search (e.g. typo-tolerant, fuzzy string searching)
- a simple, accessible preview of tabular data
- example visualisations with clear labelling (e.g. an example graph with uncoded x and y axes)
- prominent and useful metadata (including easy-read data dictionaries)

- short paths to multiple data download formats and APIs
- quick access to key statistics about their local area

In summary, for a data publishing platform, Data Publishers want:

- a reliable, efficient, accessible, and logical service
- clear guidance (in context) and help documentation
- minimal jargon and plain-English labelling where appropriate
- clear progress indicators with the option to save progress
- automated quality assurance (QA)
- preview and/or staging before publishing

As suggested in Discovery, an iterative approach to deploying and improving both the portal and publishing platforms is recommended for the Beta phase, beginning with the basics of easier publishing, updating, finding and accessing datasets, before moving onto more advanced features such as visualisations, automated QA and local statistics. Further testing of the information architecture is recommended to test labelling during Beta. Across all of the above, it is vital that both the open data portal and data publishing platform are as accessible as possible to a wide range of users, including disabled users and users of assistive technologies. A full accessibility audit to WCAG 2.2 (AA) standard should also be undertaken during Beta, with failures prioritised and addressed as required.

The following section provides an overview of the research, including details of the methodology.

Research overview

Background and objectives

In early 2024, the Scottish Government's Open Data Team chose to run an Agile Discovery to better understand the statistics.gov.scot service and the environment in which it operates. The Discovery consisted of three workstreams, being user research, technology and process, and policy and landscape.

In summary, the Discovery found there to be a strong and urgent case for change. The current statistics.gov.scot service was (and is) not meeting user needs, and the current technology contains significant risk in terms of cost, support and longevity.

The Statistics.gov.scot Improvement Project - Alpha represents the second step on the journey to improving the service. This consisted of two workstreams, being Users and Technology. During this Alpha, the Open Data Team have prototyped and tested solutions to shape and inform what a future state service could look like. The purpose of the Users Workstream was to understand how well the Alpha prototypes address the needs and expectations of the service's current and potential user base, and how the service could be improved to better address these. This primarily involved usability and accessibility testing of prototypes with a range of users. The overarching research question was: how can the open data portal be redesigned and developed to better serve its users and support governmental goals?

The team used Atlassian Jira and Confluence to respectively manage and document the project. While this report should be taken as the summative and final output of the Users Workstream, the repository of information and outputs on Confluence and Jira offer further details of activities, draft outputs, and ways of working.

Methodology

The programme of user research took a mixed methods, phased approach, comprised of moderated usability and accessibility testing with users (29, 60-minute sessions over two rounds) and a moderated and unmoderated survey (primarily consisting of the System Usability Scale; 50 total responses at time of writing). Round 1 of user testing focussed on general usability, resulting in various small iterative improvements to the prototypes, before Round 2 of user testing, which introduced specific accessibility-focussed sessions alongside further general usability testing of a data publishing prototype. Prototypes were subject to light touch accessibility reviews prior to each round of testing.

Prior to recruitment and any data generation, the project team completed a Data Protection Impact Assessment (DPIA), Risk Assessment Register, and User Research Ethics Plan. The DPIA was reviewed and approved as appropriate, with feedback incorporated where given. The Ethics Plan was reviewed and approved by an SG User Research Lead, with feedback incorporated where given.

Data collection

User groups

The Discovery research identified a set of six user groups, which were reviewed prior to recruitment in Alpha, and maintained for recruitment purposes. These are:

- general citizens: someone who may be occasionally interested in what's behind the headlines that affect them (inc. those who self-identify with low digital literacy)
- inquiring citizens: someone who maintains a keen interest in specific issues and may occasionally use statistics (e.g. charity, third sector or think-tank employee)
- commercial users: someone who is interested in specific datasets that are useful for achieving business objectives, working in the private sector (e.g. at an energy company or bank)
- technical/expert users: working with and talking about data are part of their daily lives. (e.g. academia, data journalist, developers)
- public sector/policy influencers: somehow who researches specific issues and uses statistics as evidence to inform others. (e.g. policy advisers, statisticians, councils, health boards)
- data publishers: someone who collates and provides data to be published on the site (both regular and infrequent)

General citizens, inquiring citizens, and commercial users were recruited by an external recruitment agency according to a brief (see 'Recruitment and participation' below for more information). This was specifically to address the gaps in participation noted during the Discovery phase, specifically being a lack of general and inquiring citizen users and users with accessibility needs who may or may not use assistive technologies. During Discovery, we found it challenging to recruit these users as they tended to be beyond out usual professional and day-to-day networks. Despite this, we found issues with the site that affected all participants (including expert users), and surmised that these would similarly affect users who we were unable to recruit. Filling these gaps in Alpha ensured we had a broad and inclusive coverage of all the above groups, including those with accessibility needs.

Technical/expert users, public sector/policy influencers, and data publishers were recruited using convenience snowball sampling, where known contacts (including participants from Discovery) were invited to participate through established networks, and asked to pass on the recruitment information to

any other interested parties (see ‘Recruitment and participation’ below for more information).

Recruitment and participation

Recruitment and participation was managed by the project team and via an external recruitment agency (which was selected from a shortlist of three, based on a balance of cost and service). The recruitment agency was engaged in order to recruit additional general citizens, inquiring citizens, and commercial users, alongside participants with a variety of accessibility requirements, to test both the usability and accessibility of prototypes for a broad and inclusive range of users. The recruitment agency has a signed non-disclosure agreement and DPIA in place with Storm ID, and is experienced in recruiting participants for SG. Given a recruitment specification, the recruitment agency screened external participants and scheduled research sessions on behalf of the project team.

The project team recruited participants via screener questionnaires. These vary between internal (SG) and external (non-SG) participants, as we asked for more personal data from external participants, including some (special category) health data, specifically about health conditions/impairments/disability (if volunteered). We were keen to include external users of assistive technology (which may include disabled users) and users with low digital literacy within the research. This is why our screening questionnaire for external participants asked about health data, which is special category personal data. We also asked all participants for any access requirements for sessions, which can constitute special category personal data.

From internal SG participants, the only personal data we required was their name and email address for contact purposes (we also asked for their job title and their experience with the service, which is not personal data).

All participants were given information that would ordinarily feature in a privacy notice on an information sheet, by the SG Open Data Team and/or the user researcher at Storm ID. The information includes:

- Background to project
- Who is collecting the information (details of all project partners transparent to participant)
- Why the work is being undertaken (purpose and legal basis of processing)
- Details of the session (what will happen)

- How information will be collected (written and digital notes, wireframe sketches)
- What information we collect (anonymised written and digital notes)
- That data is stored securely in password protected files on Scottish Government OneDrive and Scottish Government Confluence with access limited by role.
- Details of what SG Open Data Team and Storm ID do or are planning to do with the information.
- That the participant providing personal data is completely voluntary and they will give their agreement/permission to be contacted based on the information that the participant provides
- Information on their rights (e.g., we keep what you tell us private, you can ask to see what you have told us, you can ask us to rectify errors, you can ask us to delete what we know about you)
- Who will have access to the information provided (including information on publication of anonymised research reports)
- Length of time data will be kept for.
- Access to participant information and access will be restricted based on role, i.e. only those who require access to the data from The Scottish Government Open Data Team and Storm ID will have access to the data.
- Contact information for research team and in the event of a complaint.

This was accompanied by a permission form that was completed by the participant (digitally, or verbally if required, with a witness from the project team), which displayed permission requests clearly and prominently and asked individuals to positively opt-in. Permission from the participants is used to comply with our ethical requirements and is not for processing personal data. This was made clear to participants during research activities.

As noted above, general citizens, inquiring citizens, and commercial users were recruited by the external recruitment agency according to a brief. Technical/expert users, public sector/policy influencers, and data publishers were recruited using convenience snowball sampling, where known contacts (including participants from Discovery) were invited to participate through established networks, and asked to pass on the recruitment information to any other interested parties. The project team distributed recruitment information and screeners through personal invitations to participate, and the following online channels:

- Better Data Community - Microsoft Teams channels posts and newsletters.
- SG Viva Engage:
    - Scottish Official Statistics – Community.
    - Digital Data and Technology Profession (DDAT) – Community.
    - Digital Directorate - Community.
- SG Digital Directorate Newsletters.
- Office of the Chief Statistician (OCS) Newsletters on 28/05/2025, 02/06/2025 and 14/07/25.
- Open Data Scotland Slack channel.
- Trust and Transparency bulletin.

These posts reached 3000+ potential participants, of which 31 were scheduled for user testing and 29 participated (2 cancellations). Specific details of participant roles and responsibilities are not included here to prevent identification. Participants can be roughly aligned with our user groups as follows:

- general citizens (5)
- inquiring citizens (5)
- commercial users (4)
- technical/expert users (3)
- public sector/policy influencers (4)
- data publishers (both regular and infrequent) (8)

There are some overlaps in role, but each participant is only counted once, based on their principal use of statistics.gov.scot e.g. those working with data in the public sector who are data publishers are counted as data publishers.

Six participants with accessibility needs were recruited specifically for Round 2, being two general citizens, two inquiring citizens, and two commercial users. To this end, the recruitment brief included the following specifications:

All [six] participants should identify as having one or more accessibility requirements based on the following:

- Cognitive impairment (e.g. dyslexia).
- Motor impairment (e.g. paralysis, muscular dystrophy).
- Visual impairment.
- Deafness or hearing loss.
- Neurodiversity (e.g. ADHD, autism).

This should include:

- At least one participant who primarily navigates the web by keyboard.
- At least one participant who uses a screenreader (e.g. Voiceover) whilst using the internet.
- At least one participant who uses screen magnification whilst using the internet.

Another participant with accessibility needs was recruited as part of the wider recruitment. Participants also self-assessed their digital confidence as part of initial screening, with all participants during both rounds reporting generally high digital confidence.

Across all recruitment activities, we aimed for a reasonable gender split and spread of ages, with a mix of geographical locations across Scotland.

Overview of data collected

Data collected for this project included:

- Recruitment data (name, email and phone number to arrange session timings and information to cater to access requirements, demographic information including age, local authority, gender, disability or long-term health condition, experience with the service and job title where applicable).
- Research data (handwritten notes, digital notes).
- Data collected via audio and video recordings (contextual information, experiences of public services, feedback to prototypes).

Research activities

During moderated user testing sessions, participants were asked to complete realistic tasks using one of the four prototypes as appropriate to the user type, before completing the System Usability Scale (SUS) questionnaire, generating quantitative data via Microsoft Forms. The SUS is a ten-item Likert scale developed by John Brooke in 1996, that has since been validated and used extensively in various contexts to provide a high-level subjective and comparative measure of usability. We used the established 'website' variant of the SUS, in which the word 'website' is substituted for the word 'system' in each statement.

Audio and video data was collected via screen recording, with notes taken during each session by a maximum of two additional notetakers. Broadly,

these sessions focused on task completion, comprehension, navigation, and trust in the prototype. All data was securely stored on SG systems, e.g. OneDrive and Confluence, with access limited by role.

Further quantitative and qualitative data was generated through an unmoderated survey of a wider pool of potential participants. The anonymous questionnaire primarily consisted of the SUS, plus some basic demographic information and free text comments (all optional), via Microsoft Forms. The questionnaires were specific to each prototype, linked to from each prototype's phase banner, and contained an instruction to find data using the prototype prior to completing the form. The links to the questionnaires went live on the prototypes at the start of Round 2 of user testing.

Data analysis

Qualitative data from user testing and surveys was subject to a relatively swift and pragmatic version of template analysis, whereby initial coding of a subset of data formed a template to guide the analysis of the remaining data, with the template adjusted as required to incorporate new codes and sub-themes. Quantitative data from surveys was subject to a basic statistical analysis, using the SUS Analysis Toolkit, with a minimum SUS score of 74.1 set for benchmarking. 74.1 was chosen as a benchmark based on research conducted by Bangor, Kortum and Miller (2009), Sauro and Lewis (2016), and Lewis and Sauro (2018). While there is some very minor variation in categorising scores, there is general agreement across these studies of SUS scoring that a score of 74.1 rates the system being assessed as Above Average (relative to industry benchmarks) and Good (on the adjective scale), with a letter grade of B (below this being a B-). While this represents a reasonable benchmark for a live website, it is worth noting that we are in Alpha, testing fairly advanced prototypes, and so achieving a score of 74.1 or above at this stage would arguably bode well for a fully developed site.

Following analyses of qualitative and quantitative data, findings were shared for review and discussion with the project team. This was an iterative process, with findings becoming refined and stabilised through each round of data collection and analysis. While the Discovery work was more exploratory and thematic in understanding user experiences and needs relative to the current platform, the emphasis in Alpha was on testing and refinement, and so analysis naturally tended to produce more practical and specific findings, primarily to inform user and technical requirements.

As in Discovery, the research session schedule and participation were very well-organised by the Open Data Team, and participants were highly engaged, participative, and talkative. Although this report has a single author, the Users Workstream of this project was very much a collaborative effort, and the contributions of the Open Data Team and SG more widely in observing and/or participating in sessions should not be underestimated. Further participation in sessions with users is to be encouraged, as it offers the team a chance to gain first-hand awareness of real-life challenges faced by users, so prompting richer discussions about how to create a user-centred experience. This was certainly evident throughout this project.

Having outlined the methods used to generate and analyse data, we now turn to the findings and recommendations generated through that analysis.

Overall findings, needs and recommendations

This final section combines analyses of all qualitative and quantitative data to tell the overall story of the user research. These overall findings are then translated into broad user needs for portal users and data publishers, and recommendations for Beta.

Findings

Finding 1: High expectations for search, filtering, and accessibility

When using the open data portal prototypes, the instincts of most participants were to use the main search bar to discover data. They expected this to function like a Google search, with autocomplete, suggestions, tolerance for typos and approximate string matching (fuzzy search). At the same time, where users had a clearer idea of what they were looking for, they tended to try finding this by navigating by theme.

More experienced participants were wary of the relatively minimal filtering options on the portal prototypes, given the potentially high number of datasets, although this may be resolved by an efficient search. Participants expected the portal and publishing platform to be accessible to a wide range of users, including disabled users and users of assistive technology. Given the potentially complex nature of navigating tables, charts, and maps for some disabled users and users of assistive technology, ensuring these are accessible will require planning and testing.

Finding 2: Labels and terminology are limiting comprehension

Many participants stumbled on labels and terminology such as ‘featurecode’, ‘datacode’, ‘statistic’, ‘API’, and the use of S-codes, and asked for simpler language wherever possible. This was particularly apparent when it came to data dictionaries, filtering data, visualising data, and working with tabular data. Participants wanted keys or legends for charts, and asked for a short explanation of what each element means. Some also struggled to understand broader categories such as 'themes' and 'organisation', and suggested examples of each would help. Finding language that balances specificity with broad familiarity and comprehension requires close attention to content design, including specific work on the language, labelling, and hierarchy that is visible to users through the interface, as well as the underlying information architecture.

Finding 3: Design, metadata and lineage affect trust and confidence

Participants felt reassured by the use of the Scottish Government Design System, but this confidence could be quickly undermined without a prominent ‘last updated' (and ideally ‘next expected update’) date, surfaced from search results onwards. Participants expected short, prominent, dataset-specific summaries at the top of the dataset landing page, and would like links to related/parent datasets. Participants also looked for a data dictionary and license information, as these inspired trust and confidence in using data; when these were missing, even experienced users hesitated. In this context, lineage refers to where the data has come from and any processing it has undergone before being made available. As with Finding 2, acting to find the right language and hierarchy here requires close attention to content design.

Finding 4: Data viewer and charting need a gentler on-ramp and should be accessible

Participants hoped for a default chart or table to preview data, with a brief explanation of what they are seeing. Participants were initially enthused by chart and table-building tools but were soon confounded by unintuitive steps, confusing labels, unclear axes and recovery from errors. These tools were also effectively inaccessible to most participants using assistive technology, including keyboard-only users.

Finding 5: Local area discovery is a strong public hook

Many participants wanted to enter a postcode, neighbourhood, or local area and see relevant local statistics and an interactive map, which were seen as a desirable ‘way in’ to understanding the purpose and scope of the open data portal, alongside search and themes. Where datasets included GeoJSON formats, a map preview was appreciated and again helpful to understand context.

Finding 6: Publishers are reassured by guidance, progress, QA, and preview

Publishers found CKAN Admin and Workflow Manager broadly intuitive and more logical than the current system, but repeatedly asked for required-field indicators and help in-context (e.g. beside fields). Brief, first-time guidance and a glossary may help with onboarding new users and prompting less frequent users. Publishers felt reassured by progress indicators, the ability to save progress, and clear confirmations for large uploads. Automated QA was seen as very helpful (if possible) to enforce standards. Publishers would like

to preview a dataset before they commit to publishing on the live portal, perhaps in a ‘staging’ or ‘test’ area that mimics the live portal. Publishers also valued minimal jargon and plain-English labelling where appropriate.

Finding 7: Help and clear contact routes are valuable to all participants

Prominent, easily findable ‘how-to’ help was reassuring to all participants, across all prototypes. On the portal, clear contact details for both the team managing the portal and teams responsible for individual datasets were appreciated. Participants were happy to use a contact form but appreciated email contact too, with information on realistic response times helping to set expectations.

User needs

The user needs catalogue created during Discovery was reviewed in light of the Alpha research, resulting in some minor updates. The revised user needs catalogue can be found in Appendix C. At a high-level, taking in the findings from Discovery and Alpha, we determined five overall user needs for those using the Open Data Portal, being:

- Find and Discover
- Understand
- Visualise
- Access and Download
- Support and Feedback

We also determined five overall user needs for those using the data publishing platform, being:

- Create Publishing Task
- Manage Publishing Task
- Run Publishing Task
- Support and Feedback

In addition, for administration and support on both the Open Data Portal and the data publishing platform, we determined two further overall user needs, being:

- Manage Platform
- Other (non-functional, e.g. performance, scalability, security, maintenance etc.).

These high-level user needs are helpful to organise lower-level (i.e. specific, granular) user needs in the form of user stories, which can then be brought into sprint backlogs for planning purposes as required. These have been incorporated into the revised user needs catalogue in Appendix C.

In summary, for an Open Data Portal, Users need:

- minimal jargon and plain-English labelling wherever possible
- efficient, intuitive search (e.g. typo-tolerant, fuzzy string searching)
- a simple preview of tabular data
- example visualisations with clear labelling (e.g. an example graph with uncoded x and y axes)
- prominent and useful metadata (including easy-read data dictionaries)
- short paths to multiple data download formats and APIs
- quick access to key statistics about their local area

In summary, for a data publishing platform, Data Publishers need:

- a reliable, efficient, and logical service
- clear guidance (in context) and help documentation
- minimal jargon and plain-English labelling where appropriate
- clear progress indicators with the option to save progress
- automated quality assurance (QA)
- preview and/or staging before publishing

User groups

The six user groups identified during Discovery research and maintained for this Alpha research were reviewed for suitability and applicability for Beta, with the recommendation that these groups be maintained for further testing in Beta:

- general citizens: someone who may be occasionally interested in what's behind the headlines that affect them (inc. those who self-identify with low digital literacy)
- inquiring citizens: someone who maintains a keen interest in specific issues and may occasionally use statistics (e.g. charity, third sector or think-tank employee)
- commercial users: someone who is interested in specific datasets that are useful for achieving business objectives, working in the private sector (e.g. at an energy company or bank)

- technical/expert users: working with and talking about data are part of their daily lives. (e.g. academia, data journalist, developers)
- public sector/policy influencers: somehow who researches specific issues and uses statistics as evidence to inform others. (e.g. policy advisers, statisticians, councils, health boards)
- data publishers: someone who collates and provides data to be published on the site (both regular and infrequent)

Recommendations for Beta (and beyond)

The below offers general principles distilled from the research to date, as well as examples of suggested actions to take forward. This should take a phased approach, beginning with the basics of easier publishing, updating, finding and accessing datasets, before moving onto more advanced features such as visualisations, automated QA and local statistics. The below may go beyond Beta in terms of implementation, but is all at least worth considering now, for inclusion later.

Recommendations for beta

Recommendation	Suggested actions	Domain
Serve the fundamentals of findability and discoverability	Implement autocomplete with fuzzy search/synonyms/typo-tolerance	Open Data Portal
	Surface ‘last updated’ prominently in search results and ensure metadata is easy to find on dataset landing pages	Open Data Portal
	Replace codes with descriptors	Open Data Portal
	Include prominent ‘how-to’ guidance and in-context help text	Open Data Portal, Data Publishing Platform
Surface and explain previews	Show a meaningful table and an example chart by default on dataset pages	Open Data Portal
	Place a short ‘you can’t break the data’ explainer within API information and any analyse/visualise tools	Open Data Portal
	Allow data publishers to fully preview their dataset in a staging/preview/test version of the live site	Data Publishing Platform
Develop and test for accessibility	Schedule and act on a WCAG 2.2 (AA) audit	Open Data Portal, Data Publishing Platform
Support local area exploration	Add postcode search and a small set of curated, topical collections	Open Data Portal
	Include two or three ready-made visuals (e.g. infographics) for popular datasets to interest less experienced users	Open Data Portal

Recommendation	Suggested actions	Domain
Clear steps, guidance and reassurance for data publishers	Offer help text on field labels and links to 'how-to' guidance	Data Publishing Platform
	Allow 'save progress'	Data Publishing Platform
	Clarify status language (e.g. ‘in progress', ‘last run – successful/failed’)	Data Publishing Platform
	Offer concise run logs	Data Publishing Platform
	Provide options to assign datasets for review and a lightweight audit trail	Data Publishing Platform

Concluding remarks

The Alpha research supported the core findings from Discovery and informed requirements for Beta. The analysis of qualitative and quantitative data generated through engagement with an appropriate range of users suggests that a search-centred, plain language portal with simple data previews, quick, multi-format downloads and simple API access will meet the broadest set of user needs. For publishers, testing demonstrated that a guided, auditable workflow with staged validation and safe publishing controls is a sensible model to pursue. These sites should conform to the Scottish Government Design System and WCAG 2.2 (AA) as far as possible, with clarity and accessibility as guiding principles.

The next sections offer further detail on each round of user testing, including analyses of qualitative and quantitative data, and interim findings.

User testing: Round 1

Purpose and setup

The broad purpose of the first round of user testing was to test prototypes that had been developed to address issues with and improve upon the current service. Testing was largely task-based. Results of the tests then informed potential refinements and areas for further exploration during the second round of testing, and fed into requirements and development in the Technology workstream.

Two open data portals (named Cobalt and Emerald) and one data publishing tool (CKAN Admin) were prototyped and deployed for the first round of user testing. Cobalt and Emerald were designed and developed from scratch, using existing open-source data management systems that were identified during Discovery, respectively CKAN and PxStat, modified based on the Discovery findings, and with front-ends customised in alignment with the Scottish Government Design System. For clarity, the two Open Data Portals were a combination of 1. CKAN plus Cobalt and 2. PxStat plus Emerald. Data publishers only saw CKAN, while all other users only saw Cobalt and Emerald.

Cobalt and Admin were populated with around a dozen example datasets, and made publicly available for testing. CKAN Admin was a largely unaltered deployment of the standard CKAN backend, which fed through to the Cobalt prototype. The UI for CKAN Admin is out-of-the-box (i.e. not customised), and was accessible via login details provided to data publisher participants during testing.

Potential journeys for each user group to test each system were discussed and refined by the team prior to testing. These are available in Appendix A. These were tested on each prototype by the team, with any obvious blockers or missing details addressed prior to testing with users. Usability session scripts were then developed for each user group, and discussed and refined by the team. The full scripts for Rounds 1 and 2 of testing are available in Appendix B.

Participation and testing

21 people were recruited for Round 1 of testing. General citizens (2), inquiring citizens (2), and commercial users (2) were recruited by an external recruitment agency. Technical/expert users (4), public sector/policy influencers (4) and data publishers (4) were recruited by the Open Data

Team. Data publishers tested CKAN Admin, while all other participants were assigned to either Cobalt (9 participants) or Emerald (8 participants) on an alternating basis within their user group. After two cancellations (a technical expert and a commercial user, both assigned Emerald), 19 people participated in Round 1. Although there were fewer sessions than the maximum initially proposed (24), the team was satisfied with the range of users and depth of testing.

Usability testing sessions were run from 10/06/25 to 26/06/25, all online using Microsoft Teams. The sessions were led by Tom Farrington (user researcher, Storm ID), with note-taking and observational support from the SG Open Data Team and four members of the wider SG Data Division. In addition to the participant and researcher, no more than two notetakers/observers were permitted for each session.

Qualitative data was generated in the form of notes typed by project team members into a secure Confluence Whiteboard, and audio and video recording within Teams. This data was subject to a basic qualitative content analysis by the facilitator, being a version of template analysis as described in the Methodology section.

Quantitative data was generated through the administration (towards the end of each session) of a questionnaire containing the SUS. This was subject to a basic statistical analysis using the SUS Analysis Toolkit.

Round 1 interim findings

The following findings are interim in the sense of being produced immediately after Round 1 of usability testing, before the remaining programme of research. These are primarily designed to summarise the experiences of Round 1 participants while pointing towards potential improvements and area for further exploration during Round 2 of testing.

Participants tend to search and filter first - this needs to work well (Cobalt/Emerald)

- “I would try search first.” (P009)
- “no autocomplete - would expect this.” (P008)
- “I'm quite disappointed with those results.” (P020)
- “clear filters removes even the search term not just the filters.” (P021)
- “Search bar if you had something in mind, or [browse by] a theme if you wanted to explore.” (P017)

Auto-complete and suggestions, support for searching by synonyms, and more intuitive filters that can be cleared without clearing the search results were requested by participants.

Language and labelling should be meaningful (Cobalt/Emerald/CKAN Admin)

- “Why are we introducing new phrases [DateCode, FeatureCode]...why are we not just calling things what they are?” (P006)
- “the labels aren't very clear - what is it measuring?” (P013)
- “If the labels are intuitive, then I'd just dive right in. Easy!” (P019)
- “I don't know what FeatureCode is - that's just a serial number to me.” (P017)
- “What does 'type override' mean?” (P004)

Unclear dimensions/variables (i.e. it is not clear what is being counted) and form field labels (often default terminology) blocked progress for every user group, on each prototype.

Perceived recency affects perceived credibility (Cobalt/Emerald)

- “2018/19 is pretty outdated – I don’t think I could use that.” (P001)
- “Super important to know that you're working with the latest data.” (P003)
- “What does ‘last updated’ mean? March is a few months ago...” (P014)

Participants valued clarity on timeliness, and seeing any old(ish) dates caused distrust.

Preview, visualise, and download (Cobalt/Emerald)

- “I have to work really hard to see a chart - in a perfect world I would just like to see a chart to see the data.” (P012)
- “I want to see the data rather than text about the data.” (P012)
- “Charts and graphs look really useful, would totally use this.” (P019)
- “The information to help me understand bar charts and data aren't there.” (P009)
- “I'm looking for something that can show me the potential of the platform.” (P021)
- “I'd like the option to view the dataset on screen to check, particularly if it's a chunky dataset.” (P020)

Although participants enjoyed having a go at using table/chart builders, a default, ready-made table/chart would introduce users to the dataset, offer useful information, and indicate a possible outcome of the feature.

Help and contact journeys are present and correct (Cobalt/Emerald)

- “Help is where I would expect it to be.” (P010)
- “I don't have the patience for online FAQs.” (P012)
- “All of the stuff on the Help page seems reasonable. Good to see the contact us button there.” (P020)
- “Contact us form is really a gold standard – you don’t see this 9 times out of 10.” (P008)

Participants wanted one obvious way to contact publishers and the site team, and appreciated other options and an expected response time when contacting the site team.

Publisher experiences (CKAN Admin)

- “It’s so much more intuitive than what it was before. Pipelines and what-not, no one really knows what it means.” (P004)
- “This is quite quick to do and it feels like I might have missed something.” (P004)
- “If I click upload do I miss the opportunity to fill in the fields?” (P011)
- “Not sure it was clear that it would be uploaded straight away after selecting ‘public’.” (P005)
- “Has it uploaded? … how do I know when it's safe to click off on to the next page?” (P007)
- “Do I want to validate? No, I just want to download it, the validation might fail.” (P007)

Publisher participants appreciated the brevity and simplicity of the CKAN Admin site relative to the current system, but would be reassured by clear help/explanatory text for each form field, a summary check and upload confirmation.

API polarisation (Cobalt/Emerald)

- “This is really nice - gives me an example API endpoint.” (P008)
- “I don’t know what an API is.” (P014)
- “in an ideal world you get an explainer of an API.” (P006)
- “I'd have thought I'd have broken the site if I clicked on this.” (P019)

API users appreciated the presentation and examples, while non-API users would appreciate a plain-language introduction and reassurance they can't 'break' the site.

Local, topical, and visual discovery can encourage use (Cobalt/Emerald)

- “Would love the ability to have charts and figures to understand the data.” (P013)
- “Local statistics could be really useful.” (P017)
- “I want to know more about my local area - anything that mght impact my son's future.” (P014)
- “browse by theme etc. feels like the right approach to start off with, but it gets very technical very quickly after that.” (P019)

Postcode search, trending or topical datasets and default charts would likely provide context and encourage exploration, particularly amongst less experienced participants.

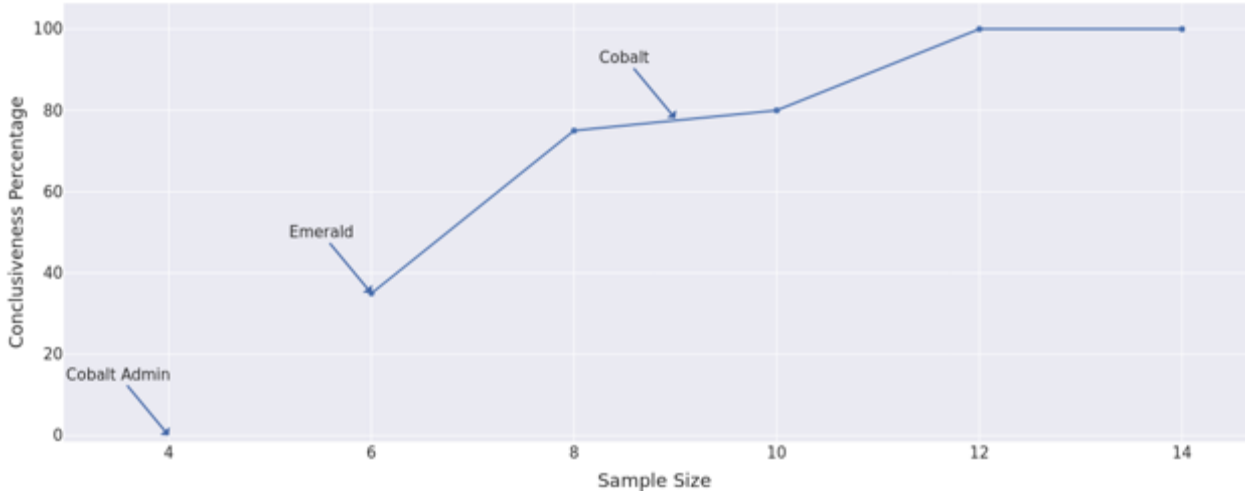
General preferences (Cobalt/Emerald/CKAN Admin)

Based on Round 1 qualitative data alone, most participants reacted more positively to Cobalt than to Emerald. While data publishers found CKAN Admin generally preferable to the current system, they were often confused by terminology and concerned about the apparent lack of checks and validation.

System Usability Scale (Round 1)

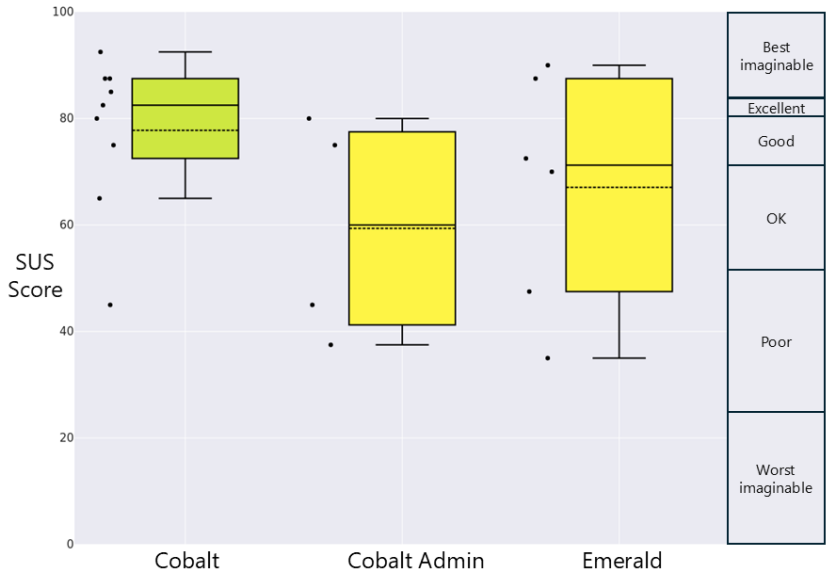
Responses to the SUS were gathered from the 19 participants in the final minutes of each testing session, as required to gather their immediate reflections on the system just used. 9 participants assessed Cobalt, 6 assessed Emerald, and 4 assessed CKAN Admin. The SUS requires at least 12 responses to reach the highest level of conclusiveness, as shown in the following plot:

Round 1 System Usability Scale Conclusiveness for 3 prototypes



This gives 78% conclusiveness for observations on Cobalt, 35% for Emerald, and 0% for CKAN Admin. Although inconclusive for Emerald and CKAN Admin, this is plotted below along with all data points, showing a higher score (77.78) and lower SD (14.71) for Cobalt than Emerald (67.08 and 21.88 respectively). The lowest score (59.38, SD of 21.25) is for CKAN Admin, although again this is based on only 4 responses.

Round 1 System Usability Score boxplots comparing 3 prototypes



N.B. For testing purposes, CKAN Admin is referred to as Cobalt Admin. 'Imagineable' is a typo embedded into the SUS Analysis Toolkit.

The following table offers more detail on the usability of each system, relative to each other and various established scales:

Table Comparing Round 1 System Usability Scores of 3 Prototypes with other benchmarks

System	Cobalt	CKAN Admin	Emerald
SUS Score (mean)	77.78	59.38	67.08
SD	14.71	21.25	21.88
Min	45	37.5	35
Max	92.5	80	90
Adjective Scale	Good	OK	OK
Grade Scale	B	D	C
Quartile Scale	3rd	1st	2nd
Acceptability Scale	Acceptable	Marginal	Marginal
NPS Scale	Passive	Detractor	Passive
Industry Benchmark	Above Average	Below Average	Below Average

Despite the relative inconclusiveness, these scores do chime with opinions expressed during user testing, namely that Cobalt is preferred over Emerald, and that although CKAN Admin is preferable to the current system, it is not without flaws. Helpfully, the combined responses after Round 2 plus unmoderated responses (shown in the following sections) offer 100% conclusiveness on both Cobalt and Emerald. As described below, CKAN Admin was replaced by a new data publishing platform prototype for testing in Round 2, being Workflow Manager.

User testing: Round 2

Purpose and setup

The broad purpose of the second round of user testing was to test updated versions of the initial prototypes, with a specific focus on accessibility testing with disabled users (who may or may not use assistive technologies to access the web). Again, testing was largely task-based. Results of the tests informed an updated user needs catalogue (seem Appendix C) and a high-level user requirements catalogue.

Versions of Cobalt and Emerald were iterated and deployed for testing, while CKAN Admin was replaced by a new data publishing platform prototype, Workflow Manager. While data publishers saw CKAN Admin as an improvement over the current admin system, there was some concern that it may not be the best option to meet the future needs and objectives of the Open Data Team and wider data communities, hence the decision to test a new prototype (based on research to date).

Workflow Manager had a somewhat novel journey from ideation to testing, being designed and developed using Figma Make, which is a relatively new AI-powered prototyping tool. Briefly, the Open Data Team had been discussing the possibility of prototyping and testing a bespoke solution (i.e. not an existing solution such as CKAN or PxStat admin) for managing the various tasks associated with publishing data to the Open Data Portal. This prompted a rough journey and feature mapping exercise and an action to create a basic prototype to potentially test with data publishers instead of CKAN Admin in Round 2. With some experience in prototyping, the user researcher (also the author of this report) had intended to create a basic design using Figma but, upon opening the software, noticed the new Figma Make feature. Within a few prompts, the tool had designed, coded, and published a surprisingly advanced front-end prototype, which broadly aligned with the journeys and included the features discussed by the team just a few days earlier. For testing purposes this was named Workflow Manager (later known as ‘Jade’).

Leading up to testing, the team rapidly iterated upon the front-end Workflow Manager prototype to better meet the data publisher needs generated through Discovery and Alpha research up to that point. Although the prototype did not strictly adhere to the Scottish Government Design System, it was ultimately deemed fit for testing with data publishers.

Usability session scripts for Round 2 were adapted from Round 1 scripts. While the journeys were broadly similar, some changes were required to make the scripts suitable for testing with disabled users and users of assistive technologies, and to better suit the new Workflow Manager prototype. Journeys were first tested on each prototype by the team, with any obvious blockers or missing details addressed prior to testing with users. The full Round 2 scripts are available in Appendix B (following the Round 1 scripts).

Participation and testing

10 people were recruited for and participated in Round 2 of testing. General citizens (2), inquiring citizens (2), and commercial users (2) were recruited by an external recruitment agency. In order to more fully test the accessibility of Cobalt and Emerald, the brief for the external recruiter specified that all of these participants should identify as having one or more accessibility requirements based on the following:

- Cognitive impairment (e.g. dyslexia).
- Motor impairment (e.g. paralysis, muscular dystrophy).
- Visual impairment.
- Deafness or hearing loss.
- Neurodiversity (e.g. ADHD, autism).

Descriptions of disability or impairment, and any assistive technology (if used) are below, although most details are removed to prevent identification. Broadly, the below participants were all based in Scotland and aged between 30 and 50.

Descriptions of disability or impairment

P#	User group	Gender	Disability or impairment (self-described)	Assistive technology
P024	Commercial user	F	Neurodivergent; ADHD	n/a
P025	Commercial user	M	Visually impaired; registered Blind	Screenreader
P026	General citizen	M	Neurodivergent; dyslexic	n/a
P027	Inquiring citizen	F	Visually impaired; registered Blind	Screenreader
P028	Inquiring citizen	M	Neurodivergent; ADHD, Autistic.	n/a
P029	General citizen	M	Mobility, limited dexterity; Cerebral Palsy	Speech to text software

Data publishers (4) were recruited by the Open Data Team from details gathered during Round 1. Given the focus on accessibility and the challenges already experienced with advanced features during Round 1 of testing, the team were confident that there was little to no benefit of recruiting technical/expert users for Round 2. The team were similarly confident that there was little to no benefit of specifically recruiting public sector/policy influencers for Round 2 of testing, given the similarity of findings related to these users and the citizen and commercial groups in Round 1, and the similarity of their wider knowledge and experience to the data publishers group.

Data publishers tested Workflow Manager, while all other participants were assigned to either Cobalt (3 participants) or Emerald (3 participants) on an alternating basis within their user group. Again, for Round 2 there were fewer sessions than the maximum initially proposed (16, which had included technical/expert and public sector/policy influencers), but the team was satisfied with the range of users and the depth of testing.

Usability and testing sessions were run from 08/07/25 to 15/07/25, all online using Microsoft Teams. The sessions were led by Tom Farrington (user researcher, Storm ID), with note-taking and observational support from the SG Open Data Team and four members of the wider SG data community. In

addition to the participant and researcher, no more than two notetakers/observers were permitted for each session.

Qualitative data was generated in the form of notes typed by project team members into a secure Confluence Whiteboard, and audio and video recording within Teams. This data was subject to a basic qualitative content analysis by the facilitator, being a version of template analysis as described in the Methodology section.

Quantitative data was generated through the administration (towards the end of each session) of a questionnaire containing the SUS. This was subject to a statistical analysis using the SUS Analysis Toolkit.

Round 2 interim findings

The following findings are interim in the sense of being produced immediately after Round 2 of usability testing, before an overall analysis of both rounds of testing. These are primarily designed to summarise the experiences of Round 2 participants to highlight any potential adjustments, with a particular focus on improving accessibility.

Language and labelling should be meaningful (all platforms)

- "I'd dive straight into themes, thinking about demographics…could be more information on 'Organisations'…I wouldn't know what that means, necessarily" (P024)
- "Open Data Scotland have links through to 'what is open data?'… there could be a glossary of terms like this" (P024)
- "Selecting dimensions? No idea." (P028)
- "I'd be doing an eye-roll if I saw the long description - I need a TL;DR version." (P028)
- "With tags I was waiting for a dropdown" (P030)
- "Would be useful to have a glossary" (P031)

Plain-English labels and explanations of each at the point of use (e.g. an inline glossary) would reduce hesitation and misinterpretation.

Accessibility issues can make core tasks tricky (Cobalt/Emerald)

- "Straight away NVDA [screenreader] is recognising the main heading as a landmark rather than h1" (P025)
- "You could have a high contrast mode" (P025)

- "Search should be a heading, although I'd probably still look for it, I'd be annoyed it wasn't a heading…skipping by heading is so much easier" (P027)
- "Search is level 3, and filters are level 3. Make the search heading level 2." (P025)
- "[Dataset Analysis modal] I use my scroll wheel to scroll down [accidentally zooms in on chart]… I'd freak out and think this wasn't for me!" (P024)

Fixing heading levels, focus order, and contrast ratios, and ensuring modals/updates are announced will unblock assistive-tech users. More intuitive visualisation tools will help for all sighted users.

High expectations for search and filtering (Cobalt/Emerald)

- "I want the search to be like Google" (P024)
- "that's quite a lot of categories! So I might use the filter to bunch some together, otherwise I'd have to scroll down loads" (P024)
- "search can be the most inaccessible part of websites" (P025)
- "first instinct is to use the search tool" (P026)
- "I'd like to search by postcode" (P027)
- "my personal preference is a good search bar" (P028)

Regarding search, participants expect autocomplete, suggestions, and fuzzy search. Filtering should be intuitive and relevant. Both should be fully accessible.

Preview, visualise and download (Cobalt/Emerald)

- "Data preview is what I would expect" (P022)
- "I'd expect a better preview of how it would look - exactly how the website would look to someone going to it" (P023)
- "Would be good to have preview [chart and/or table] as well as [ability to] build it yourself." (P029)

A default, ready-made preview (and simple chart) reassures users and helps them verify they're in the right place before trying any more involved chart or table-building.

Help and contact journeys should be unambiguous and intuitive (Cobalt/Emerald)

- “Help - I would hope you could type in a keyword or queries to get answers - more of a search engine” (P022)
- “contact and help are in the expected places” (P026)
- “metadata is useful but I find it odd that it’s got a contact email address lumped in with that” (P026)
- “is that a contact for someone to do with the person who collates the stats or a contact for the person from within the dept who produced the stats” (P028)
- “[on contact us form] - this is fantastic!” (P028)

Participants value clear obvious routes to contact the right person, plus searchable help.

Clear orientation, status language and safer publishing (Workflow Manager)

- “starting a new workflow seems to be missing” (P030)
- “might be useful to have a welcome message, could be more reassuring” (P031)
- “Not a massive fan of the ‘start time’…'running' doesn’t tell you why it’s running.” (P022)
- “it’s good that it says when it was last run” (P023)
- “does last run mean successful? Or could this be unsuccessful?” (P031)
- “I’d be very cautious about publishing without any checks!” (P022)
- “Don’t feel comfortable publishing, I could accidentally click that.” (P023)
- “Add a ‘take me to my new dataset’ so I can admire it…I would expect to be instantly taken to the dataset page at the end - that would completely reassure me.” (P030)

A first-run welcome, clarification of status terms (e.g. duration, start time, last run), and confirm-to-publish or staging area would reduce uncertainty.

Team collaboration and provenance are expected (Workflow Manager)

- “I’d hope you could send people in your team datasets locally for internal checking” (P022)
- “I really like the assign workflow for review” (P030)
- “we QA everything before uploading it to the platform” (P023)

Participants want to assign for review, see who did what, and keep a lightweight audit trail alongside the run.

File requirements should be seen earlier (Workflow Manager)

- “file requirements should be further up so you can see them before you click select file” (P022)
- “I didn’t actually see the File Requirements…but I’d only look at that if it didn’t work” (P023)

Moving requirements above file selection would make this clearer.

General preferences (Cobalt/Emerald/Workflow Manager)

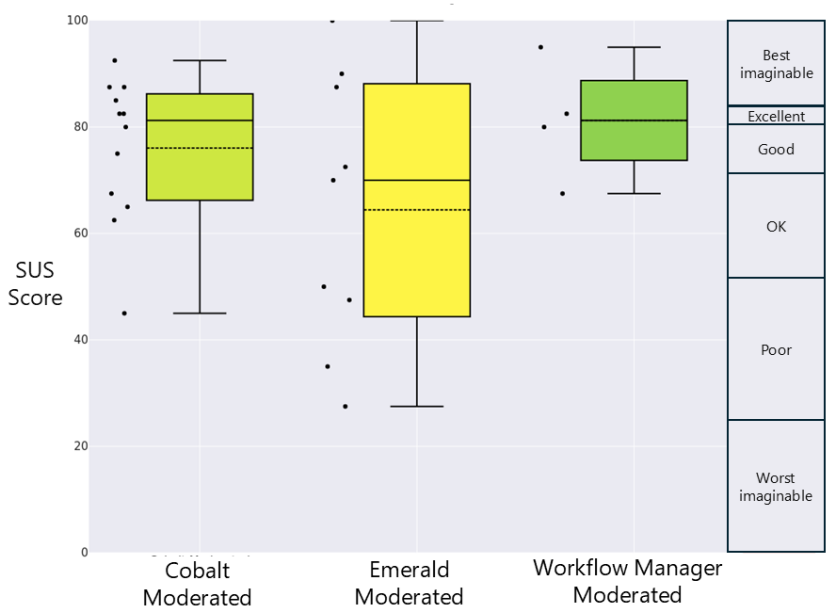
Based on R2 qualitative data alone, most participants reacted more positively to Cobalt than to Emerald, and data publishers found that Workflow Manager exceeded their expectations for a publishing platform (whilst accepting that this was a front-end only prototype).

System Usability Scale (R2)

As in Round 1, responses to the SUS were gathered from the 10 participants in the final minutes of each testing session, as required to gather their immediate reflections on the system just used. 3 participants assessed Cobalt, 3 assessed Emerald, and 4 assessed Workflow Manager. Cobalt and Emerald SUS scores from Round 2 were combined with Round 1 SUS scores to give higher conclusiveness for both, 100% for Cobalt (12 responses) and 78% for Emerald (9 responses). Analysis for Workflow Manager is inconclusive (0%).

This is plotted below along with all data points, showing a higher score (76.04) and lower SD (13.67) for Cobalt than Emerald (64.44 and 25.67 respectively). The highest score (81.25) and lowest SD (11.27) is for Workflow Manager, although again this is based on only 4 responses.

Round 2 System Usability Score boxplots comparing 3 prototypes



With the caveat that we only had 4 responses regarding Workflow Manager, the following table offers more detail on the usability of each system, relative to each other and various established scales:

Table Comparing Round 2 System Usability Scores of 3 Prototypes with other benchmarks

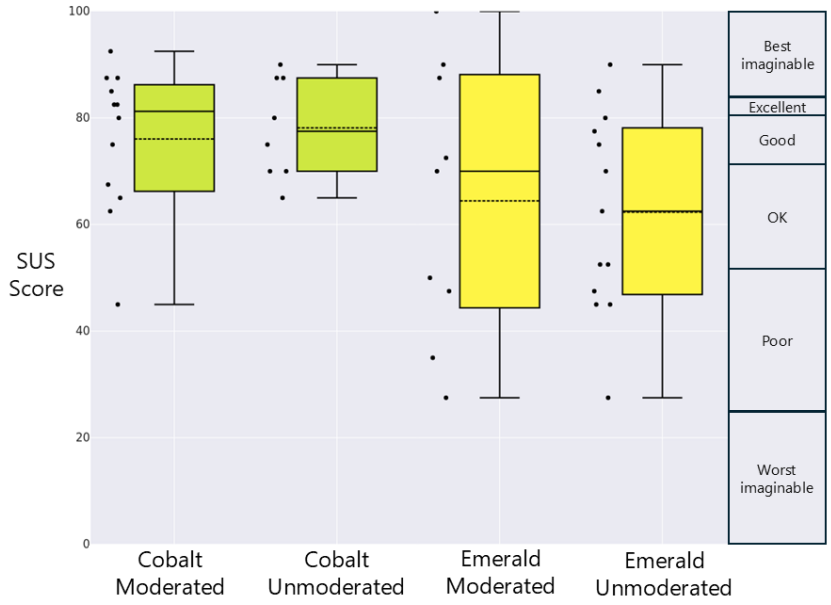
System	Cobalt Moderated	Emerald Moderated	Workflow Manager Moderated
SUS Score (mean)	76.04	64.44	81.25
SD	13.67	25.67	11.27
Min	45	27.5	67.5
Max	92.5	100	95
Adjective Scale	Good	OK	Excellent
Grade Scale	B	C	A
Quartile Scale	3rd	2nd	4th
Acceptability Scale	Acceptable	Marginal	Acceptable
NPS Scale	Passive	Passive	Promoter
Industry Benchmark	Above Average	Below Average	Above Industry Standard

Moderated and unmoderated SUS scores

As of 05/08/25, we received 13 unmoderated responses to the Emerald questionnaire, and 8 unmoderated responses to the Cobalt questionnaire. This indicates 100% conclusiveness for Emerald, and 75% for Cobalt. Qualitative data was also generated through this survey method, and analysed in accordance with the existing qualitative data.

The plot below shows the moderated and unmoderated SUS scores for Cobalt and Emerald, showing generally higher scores for Cobalt, with a much lower SD.

Boxplot comparing the Moderated and Unmoderated System Usability Scores for Emerald and Cobalt prototypes



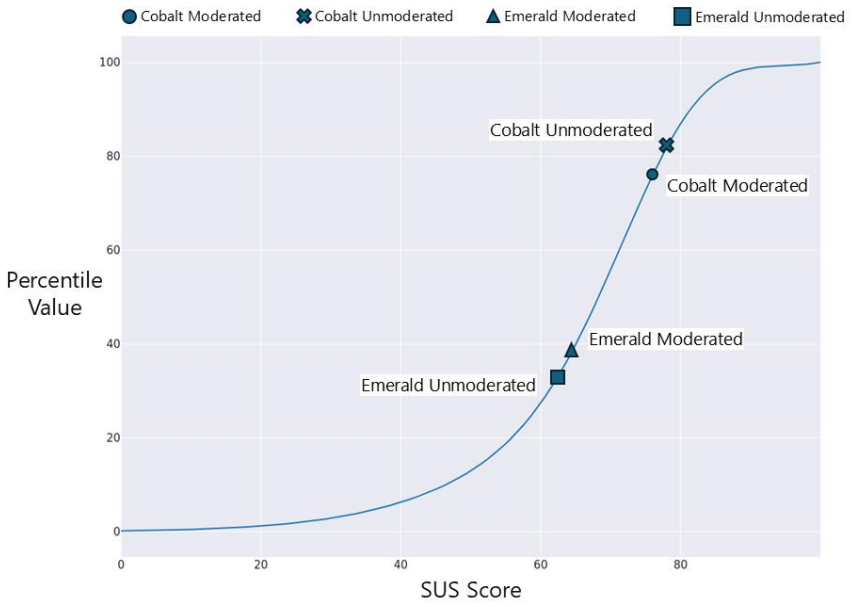
The following table offers more detail on the usability of each system, relative to each other and various established scales:

Table Comparing System Usability Scores for Moderated and Unmoderated Emerald and Cobalt prototypes

System	Cobalt Moderated	Cobalt Unmoderated	Emerald Moderated	Emerald Unmoderated
SUS Score (mean)	76.04	78.12	64.44	62.31
SD	13.67	9.52	25.67	18.86
Min	45	65	27.5	27.5
Max	92.5	90	100	90
Adjective Scale	Good	Good	OK	OK
Grade Scale	B	B	C	D
Quartile Scale	3rd	4th	2nd	1st
Acceptability Scale	Acceptable	Acceptable	Marginal	Marginal
NPS Scale	Passive	Passive	Passive	Detractor
Industry Benchmark	Above Average	Above Average	Below Average	Below Average

It is important to note that a SUS score is not a percentage in itself, e.g. a SUS score of 68 is at the 50th percentile, meaning the system is perceived as having an average usability score. The following percentile curve illustrates this point, while also clearly illustrating the relative closeness of unmoderated and moderated scores for each prototype.

System Usability Scores for Moderated and Unmoderated Emerald and Cobalt prototypes

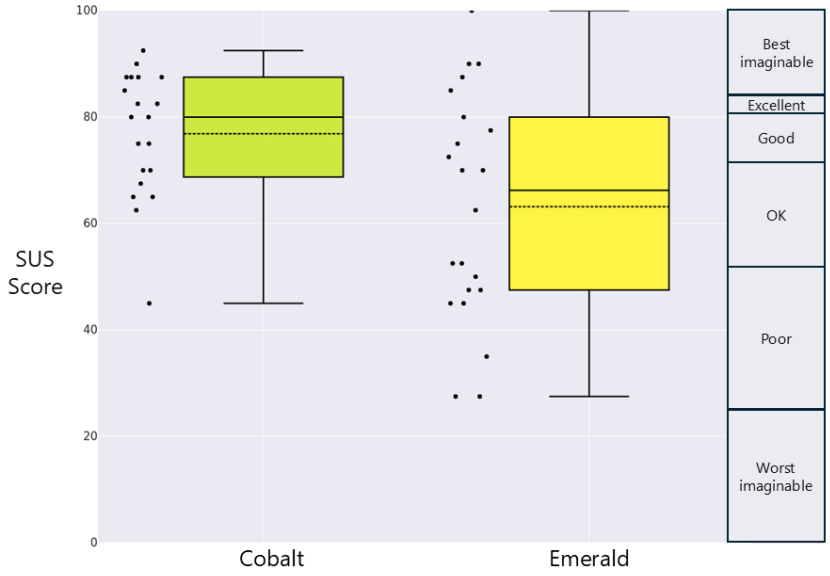


According to both moderated and unmoderated responses, this roughly places Emerald in the bottom 40% of SUS scores, and Cobalt in the top 25% of SUS scores.

Combined SUS scores

Given the relative closeness of the moderated and unmoderated scores, it is interesting to look at the combined scores, to gain an overall sense of perceived usability. These offer 100% conclusiveness for both scores, and (perhaps unsurprisingly) show a higher score (76.88) and lower SD (11.94) for Cobalt than for Emerald (63.18 and 21.34 respectively). These are plotted below:

Boxplot comparing Combined System Usability Scores for Emerald and Cobalt Prototypes



The following table offers more detail on the usability of each system, relative to each other and various established scales:

Comparison of Combined System Usability Scores for Cobalt and Emerald Prototypes

System	Cobalt	Emerald
SUS Score (mean)	76.88	63.18
SD	11.94	21.34
Min	45	27.5
Max	92.5	100
Adjective Scale	Good	OK
Grade Scale	B	C
Quartile Scale	3rd	2nd
Acceptability Scale	Acceptable	Marginal
NPS Scale	Passive	Passive
Industry Benchmark	Above Average	Below Average

Analysis of the combined quantitative data places Cobalt's score in the top 21% of SUS scores, and Emerald's score in the bottom 35% of SUS scores. The perceived usability of Cobalt thus exceeds our minimum benchmark SUS score of 74.

Qualitative data from unmoderated survey

Along with the SUS and optional demographic data, the unmoderated surveys generated qualitative (free text) responses to two questions:

- Please briefly outline how you used the website.
- Please note any feedback or suggestions for improving the website.

Again, these are completed after attempting to find data on the relevant prototype. This small quantity of qualitative data was analysed using the templates generated through analyses of user testing session data. This analysis confirms the findings from the earlier analyses, as well as the overall findings, and is summarised here for completeness:

- Participants expressed a strong relative preference for Cobalt over the current site and Emerald (evidently some had used both).
- Search needs to be typo-tolerant and fuzzy; filtering needs to be intuitive.
- Metadata, including licensing information, is valuable to participants and should be easy to find.
- Visualisation and table-building tools are generally desirable but awkward to use on both prototypes.

The above analyses and findings were reviewed and discussed by the project team, before being combined to generate the Overall findings, needs, and recommendations. These findings were then presented to the wider SG data division. Feedback from this presentation was incorporated into the first draft of this report, which was then circulated to the project team for feedback. Feedback on the draft largely related to structure and clarity, and has been incorporated into this final version.

Appendices A-C now follow, respectively presenting the user journeys considered for testing, the scripts used for testing, and the resulting catalogue of user needs.

Appendix A (user journeys)

Notes:

- Steps are just examples - they don't necessarily reflect the prototypes.
- There are some steps that a user may take outside of the website. These are indicated within the tables below, where relevant
- Discussed with team 06/05/25.

The different user groups could take on same / similar journeys. These can be broken into 3 sub-groups.

- Sub-group 1: General citizen; Inquiring Citizen; Public sector/policy influencer
- Sub-group 2: Commercial User; Technical/expert user
- Sub-group 3: Regular data publisher; Infrequent Data Publisher User

General Citizen User Group

Journey title	**Check the figures behind a news headline**	**Look up local COVID-19 case trends**
Goal	Confirm whether a headline about the number of police officers is accurate	Check if cases are rising in my council area
Step 1	Land on the homepage from a news link	Tap the search bar on mobile
Step 2	Type "police" into the main search bar	Enter their council name + "covid"
Step 3	Skim the results list and choose the "Police Officer Quarterly Strength" dataset	Select an appropriate dataset in the results
Step 4	Read the plain-English summary at the top of the dataset page	Read the plain-English summary at the top of the dataset page
Step 5	Click Download	Click Explore Data > View Data
Step 6	Open the file in a spreadsheet to compare the headline figure with the data	View and filter a table of data

Inquiring Citizen User Group

Journey title	Compare GDP between two industry sectors	Examine the gender pay gap	Find publisher contact details
Goal	Understand the relative output of different industries	Prepare a blog post with the latest gap	Obtain an email address or phone number to request clarification about a dataset
Step 1	Click Themes > Economy	Search "gender pay gap"	Type the dataset name into the main search bar
Step 2	Use the filter to pick "GDP"	Pick the appropriate dataset	Locate the contact details
Step 3	Select an appropriate GDP: output by industry dataset	Click Explore Data > View Data	N/A
Step 4	Click Explore Data > View Data	View and filter a table to show the most recent data	N/A
Step 5	Click Explore Data > View Data	Download the most recent data in csv format	N/A
Step 6	View and filter a table of data	Copy a link to the dataset to use in the blog post	N/A

Commercial User Group

Journey title	Forecast hotel occupancy	Review energy efficiency
Goal	Analyse tourism recovery post-COVID	Explore opportunities for energy-efficiency services
Step 1	Search "hotel" (and/or use advanced search)	Search "energy performance" (and/or use advanced search)
Step 2	Choose "Scottish Accommodation Occupancy" dataset	Select appropriate energy dataset
Step 3	Check licensing information	Use chart to compare areas
Step 4	Click Explore Data > View Data	Download underlying data
Step 5	View and filter a table to show the last three years of data	Identify potential high-growth areas
Step 6	Download the relevant dataset in csv format	N/A

Technical / Expert User Group

Journey title	Pull carbon footprint data via API	Gather data-zone boundaries and lookup table
Goal	Feed ML model predicting footprints	Get the GeoJSON and matching lookup CSV needed to build a custom geography offline
Step 1	Search “carbon footprint”	Use site search to find suitable GeoJSON dataset
Step 2	Find appropriate dataset	Click Download on GeoJSON format (or find and copy the API endpoint)
Step 3	Find API and instructions on how to use it	Find Data zone to council area lookup
Step 4	Copy dataset API endpoint	On the lookup dataset page, choose Download CSV (or apply the council filter first, then download)
Step 5	N/A	Save both files locally – step taken outsdie website

Public Sector / Policy Influencer User Group

Journey title	Brief minister on child obesity	Analyse ageing population	Evaluate policy outcomes
Goal	Prepare talking points for debate	Build evidence for social care strategy	Measure carbon footprint reduction progress
Step 1	Search "obesity"	Search ‘population’	Search "carbon footprint"
Step 2	Open Scottish Health Survey dataset	Find ‘population estimates young and old’	Select carbon footprint dataset
Step 3	Click Explore Data > View Data	Filter dataset by health board area	Filter for policy areas
Step 4	Find % across Scotland	View chart comparing two health board areas	Export to Excel
Step 5	Copy a link to the dataset	Copy a link to the dataset	Compare pre- and post-intervention – step taken outside website
Step 6	Email to minister – step taken outside website	N/A	Draft outcome report – step taken outside website

Regular Data Publisher User Group

Journey title	Quarterly data upload	Correct previous release error	Respond to user feedback
Goal	E.g. Keep educational attainment of school leavers figures current	Issue revised dataset	Improve metadata clarity
Step 1	Log in > Admin dashboard	Log in > Admin dashboard	Log in > Admin dashboard
Step 2	Click existing dataset	Open dataset > Create correction	Click existing dataset
Step 3	Press Upload new data and/or Drag-and-drop CSV	Upload amended CSV	Edit dataset description
Step 4	Encounter error, resolve error	Add release note describing fix	Save changes
Step 5	Pass automated validation	Review preview	Notify user – step taken outside website
Step 6	Click Publish	Approve publication	N/A

Infrequent Data Publisher User Group

Journey title	Annual survey results release	Release legacy dataset for transparency	One-off academic dataset upload
Goal	Provide new data each year	Open up 1990s archive	Make research open
Step 1	Log in after 12 months	Convert XLS to CSV	Create account and request publisher role
Step 2	Convert publisher's preferred format to platform format	Upload via Add dataset	Read step-by-step guide
Step 3	Upload dataset (e.g. drag-and-drop).	Flag as "Historical" in metadata	Click Add dataset
Step 4	Update description as necessary	Publish	Upload CSV and metadata
Step 5	Pass automated validation	Link from council website – step taken outside website	Validate and publish
Step 6	Publish and share link	N/A	Share DOI with funder – step taken outside website

Appendix B (user testing scripts)

Round 1

General introduction (5 min)

Thanks for taking the time to speak with me today. I'm from Storm ID, and we're working with the Scottish Government Open Data Team, to conduct research into the usability of a prototype statistics website.

[Optional] I have some colleagues on the call. They are here to observe the session and take notes. During the session, they will have their microphones and cameras off, so will be in the background as you and I chat. Are you happy for them to stay on the call to observe the session?

[Intros here or before 'First impressions']

If you're comfortable with us doing so, we'd like to record this session. This would be recording the screen, audio, and video. We ask to do this so that we can go back and check the recording when writing our report on how the session went. We don't share these recordings with anyone, and once the report is complete, the recordings will be deleted. If you'd rather we don't record, we can still continue with the session.

Are you happy for me to turn on the recording? [Turn on recording]

The session will take up to 60 minutes.

This session is entirely voluntary and if at any point you'd like to take a break or stop the session you just need to let me know. You do not need to give a reason.

We're going to ask you to share your screen, tell us what you think of the prototype, and complete a few tasks using the prototype – please just give each one your best attempt. Please talk us through your thinking as you work through each task, and don't worry if you get stuck – that's useful for us to see.

Sometimes I'll ask things that seem really obvious, and I might seem to be asking the same thing repeatedly – please be patient with me and trust me, it is all useful.

We hope you'll be comfortable giving us your honest opinion. Ultimately, feedback or comments gathered in these sessions will help us improve what we're doing. I'm interested in how you find the interface and where it could be clearer. There are no right or wrong answers – we're testing the prototype, not you.

At the end I'll ask you to complete a very short survey – it should only take a few minutes.

Any comments and feedback you share with me will be used only for the purposes of this research. Direct quotes or opinions will be anonymised before we include them in our report.

Do you have any questions for me before we begin?

Participant to navigate to

Cobalt Open Data Portal Prototype

or

Emerald Open Data Portal Prototype

or

Cobalt Open Data Admin Portal Prototype

and share browser window.

First impressions (5 mins)

- Take a few moments to look at the homepage.
- What is your first impression?
- What do you notice first?
- What information seems most useful to you here?
- What do you expect you can do here?
- Is there anything of interest to you on just this page?
- Anything missing which you expected to see?
- What does [datasets, organisations, themes etc.] mean to you?

Specific tasks by user group follow.

General citizens and inquiring citizens

Task 1: Check the figures behind a news headline (finding data, searching) (5-10 mins).

Note: go back to the homepage.

Scenario: Imagine you came across a news headline claiming the number of police officers in Scotland is at a 'record low.' Using the site, find the official data behind this headline to check if it's accurate.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How easy or difficult was it to find the data to verify the headline?
- Did the information you found match what you expected to see?
- Is there anything you would have preferred to see (e.g. a summary or graph) to help understand the headline?

Observation notes:

- Does the participant use the search bar or navigate through categories to find the data?
- Are they confused by any terminology or by the way in which results are presented?
- Do they notice details like dates or organisation name? Did these give them confidence?

[Optional] Task 2: Look up local COVID-19 case trends (finding, searching) (5-10 mins)

Note: go back to the homepage.

Scenario: You want to check recent COVID-19 case numbers in your local area. Try to find data that would help you think about this.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How was that experience?

- Did you find the information you were looking for?
- What would you do next (e.g. look for more details, compare to other areas)?

Observation notes:

- Did the participant want to view the data or download it? Or did they ignore or miss this?
- If they attempted to visualise the data, then how did they get on? Was it helpful? Why or why not?
- Where there are any signs of frustration, e.g. repeatedly clicking or scrolling?

[Inquiring citizen] Task 3: Compare GDP between two industry sectors (finding, searching, viewing) (up to 10 mins)

Note: go back to the homepage.

Scenario: You want to compare the GDP of two industry sectors (for example, manufacturing and agriculture). Use the site to find data for each of two industries and see which one has a higher output or growth.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How easy was it to find information for both sectors?
- Were you able to make a comparison from the data you found? What would have made this easier for you?
- Do you feel confident that you found the right data to answer your question? Why or why not? Was anything missing?

Observation notes:

- Did the participant find the data easily?
- Was there any difficulty in interpreting the data?
- Did the user seem happy enough throughout the process? Were there any particular sticking points for them?

Task 4: Find publisher contact details (5 mins)

Note: go back to the homepage.

Scenario: You are interested in contacting the publisher of the data to ask if they have found anything interesting in their analysis. Find out how you would do this.

- Where do they begin?
- What are they thinking as they look for this?
- Where would they typically expect to see contact information?

Follow-up questions:

- How would you typically expect to get in contact with a data publisher? (e.g. email, ‘phone, contact form etc.)
- Why might you get in touch with a data publisher?

Observation notes:

- Did the participant hesitate when looking for this information?

Task 5: Locate help or support (5 mins)

Scenario: Let’s say you need help while using the site – for instance, understanding how to find data. Show me how you would find help or support on the site.

Follow-up questions:

- Was it clear where you should go for help?
- Was the help you found useful?
- Was the help where you expected to find it?

Observation notes:

- How did the participant look for help? Did they see it in the top nav, or scroll to the footer etc.?
- Did the participant distinguish between contacting the Open Data Team and contacting a specific data publisher?

System Usability Scale

Ask participant to complete the SUS.

Discussion (5 min)

- How would you describe your overall experience using this site? (Any particular words come to mind?)
- What did you like best about the site, and what did you like least or find frustrating?
- Would you trust the data on this site is reliable? Why or why not?
- If you could change one thing about this site then what would it be?

[Thanks and close.]

Commercial users

Task 1: Forecast hotel occupancy (finding, searching, filtering, viewing, downloading) (10 mins)

Scenario: You are trying to forecast hotel occupancy rates as part of a post-COVID tourism recovery analysis. Using the site, find data on tourism or hotel occupancy in Scotland that could help you forecast future occupancy trends.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How was that experience?
- Did the data you found seem sufficient for forecasting purposes?
- If you were doing this for work then would you feel confident using the data from this site? Why or why not?

Observation notes:

- Did the participant have a clear strategy, like searching for specific keywords or browsing by theme?
- Did they encounter any difficulties understanding the data?
- What were their instincts around downloading and/or analysing data?

Task 2: Review energy efficiency (finding, searching, filtering, viewing, downloading)(10 mins)

Scenario: Let's say your company provides energy-efficiency services. You want to identify areas with poor energy efficiency to target your marketing. Use the site to find data about the energy efficiency of buildings in Scotland.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How easy was it to find relevant data?
- Do you think the data you found would help in this scenario? If not, then what other information would you need?
- Was any terminology confusing?

Observation notes:

- Did the participant start with search, or browse by theme?
- Did the participant struggle with any terminology?
- Did the participant use filters to narrow down e.g. area?

Task 3: Find publisher contact details (5 mins)

Note: go back to the homepage.

Scenario: You are interested in contacting the publisher of the data to ask if they have found anything interesting in their analysis. Find out how you would do this.

- Where do they begin?
- What are they thinking as they look for this?
- Where would they typically expect to see contact information?

Follow-up questions:

- How would you typically expect to get in contact with a data publisher? (e.g. email, 'phone, contact form etc.)
- Why might you get in touch with a data publisher?

Observation notes:

- Did the participant hesitate when looking for this information?

Task 4: Locate help or support (5 mins)

Scenario: Let's say you need help while using the site – for instance, understanding how to find data. Show me how you would find help or support on the site.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Was it clear where you should go for help?
- Was the help you found useful?
- Was the help where you expected to find it?

Observation notes:

- How did the participant look for help? Did they see it in the top nav, or scroll to the footer etc.?
- Did the participant distinguish between contacting the Open Data Team and contacting a specific data publisher?

System Usability Scale

Ask participant to complete the SUS.

Discussion (5 min)

- How would you describe your overall experience using this site? (Any particular words come to mind?)
- What did you like best about the site, and what did you like least or find frustrating?
- Would you trust the data on this site is reliable? Why or why not?
- If you could change one thing about this site then what would it be?

[Thanks and close.]

Technical/Expert users

Task 1: Pull carbon footprint data via API (finding, using API) (10 mins)

Scenario: You're working on a project about carbon footprints, and you need to pull the latest carbon footprint data via the site's API. Find a relevant dataset and figure out how you would retrieve that data using an API.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How straightforward was it to find the dataset and API?
- Was the API presented as you would expect?
- Is there anything about the process that might slow you down?

Observation notes:

- Does the user appear comfortable with the terminology?
- Note any points where the user hesitates or backtracks - do they see the 'API' button immediately?
- Does the participant comment on data format (JSON, CSV, etc.) or any metadata? Is the layout and terminology meeting their expectations?

Task 2: Gather data-zone boundaries and lookup table (finding, searching, data formats) (10-15 mins)

Scenario: You need to create a map of statistical data, which requires geospatial boundary files and a lookup table for data zones in Scotland. Find a suitable dataset and the corresponding data zone lookup table (a CSV or similar that maps data zone codes to area names).

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How was the experience of finding these?
- What would you do next?

Observation notes:

- Does the participant search for a specific dataset, broader terms like ‘data zone’ or ‘GeoJSON’, or do they browse and/or filter datasets?
- What does the participant do first on the dataset landing page?
- Does the participant find the map to view?

Task 3: Find publisher contact details (5 mins)

Note: go back to the homepage.

Scenario: You are interested in contacting the publisher of the data to ask if they have found anything interesting in their analysis. Find out how you would do this.

- Where do they begin?
- What are they thinking as they look for this?
- Where would they typically expect to see contact information?

Follow-up questions:

- How would you typically expect to get in contact with a data publisher? (e.g. email, ‘phone, contact form etc.)
- Why might you get in touch with a data publisher?

Observation notes:

- Did the participant hesitate when looking for this information?

Task 4: Locate help or support (5 mins)

Scenario: Let’s say you need help while using the site – for instance, understanding how to find data. Show me how you would find help or support on the site.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Was it clear where you should go for help?
- Was the help you found useful?
- Was the help where you expected to find it?

Observation notes:

- How did the participant look for help? Did they see it in the top nav, or scroll to the footer etc.?
- Did the participant distinguish between contacting the Open Data Team and contacting a specific data publisher?

System Usability Scale

Ask participant to complete the SUS.

Discussion (5 mins)

- How would you describe your overall experience using this site? (Any particular words come to mind?)
- What did you like best about the site, and what did you like least or find frustrating?
- Would you trust the data on this site is reliable? Why or why not?
- If you could change one thing about this site then what would it be?

[Thanks and close.]

Public sector/policy influencers

Task 1: Brief minister on child obesity (finding, searching, filtering, visualising) **(10 mins)**

Scenario: You are preparing to brief a government minister on child obesity rates for an upcoming meeting. Use the site to find the latest statistics on child obesity in Scotland.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- How was that experience?
- Was it easy to understand the data?
- Would you feel confident citing this site's data to a minister? Why or why not?

Observation notes:

- Did the participant prefer to search or browse to find the data? Were they successful?
- Did they focus on finding a single headline figure or try to gather additional context?
- Did they have any difficulty interpreting the data?

Task 2: Analyse ageing population (finding, searching, filtering, visualising) (10 mins)

Scenario: You're working on a social care strategy for an ageing population. You need data to understand the scope of the issue, e.g. how fast the population is ageing, or what proportion of the population is over a certain age. Use the site to find statistics on the ageing population in Scotland.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Did you find what you needed to help inform the strategy?
- How was the experience of finding this data?
- Is the data presented in a way that's helpful to you?

Observation notes:

- If searching, then did the participant use specific terms (e.g. “ageing population”) or broader terms (e.g. “age”)?
- Did they make any comment on the details of the dataset, e.g. the date last updated?
- Did the participant hesitate at any points, e.g. when visualising data?

Task 3: Evaluate policy outcomes (finding, searching) (10 mins)

Scenario: You need to evaluate the outcomes of a carbon reduction policy – say the government aimed to cut the carbon footprint or emissions by a certain percentage. Use the site to find data on carbon emissions or carbon footprint trends in Scotland.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Could you find what you needed?
- Did you find it easy to interpret the data?
- What would you do next?

Observation notes:

- Did the participant prefer to use search or navigate by themes?
- Did the participant look for charts or another visualisation?
- Did the participant pay any attention to descriptions and/or metadata? Did they appear to understand this? Did they find it useful?

Task 4: Find publisher contact details (5 mins)

Note: go back to the homepage.

Scenario: You are interested in contacting the publisher of the data to ask if they have found anything interesting in their analysis. Find out how you would do this.

- Where do they begin?
- What are they thinking as they look for this?
- Where would they typically expect to see contact information?

Follow-up questions:

- How would you typically expect to get in contact with a data publisher? (e.g. email, ‘phone, contact form etc.)
- Why might you get in touch with a data publisher?

Observation notes:

- Did the participant hesitate when looking for this information?

Task 5: Locate help or support (5 mins)

Scenario: Let’s say you need help while using the site – for instance, understanding how to find data. Show me how you would find help or support on the site.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Was it clear where you should go for help?
- Was the help you found useful?
- Was the help where you expected to find it?

Observation notes:

- How did the participant look for help? Did they see it in the top nav, or scroll to the footer etc.?
- Did the participant distinguish between contacting the Open Data Team and contacting a specific data publisher?

System Usability Scale

Ask participant to complete the SUS.

Discussion (5 mins)

- How would you describe your overall experience using this site? (Any particular words come to mind?)
- What did you like best about the site, and what did you like least or find frustrating?
- Would you trust the data on this site is reliable? Why or why not?
- If you could change one thing about this site then what would it be?

[Thanks and close.]

Data publishers (regular and infrequent)

Task 1: Data upload (validation, publication) (15 mins)

Scenario: You have new data that needs to be published on the site (e.g. quarterly data, annual data, or one-off dataset). Show how you would add a new dataset to the platform.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Was it clear how to start the process of adding a new dataset?
- Did anything confuse you or slow you down?
- How did this compare with any other similar systems you've used?

Observation notes:

- Did the participant find the process intuitive? Did any particular part seem more challenging?
- How do they handle metadata?
- Did they try to access help or guidance?

Task 2: Correct previous release error (maintenance) (10-15 mins)

Scenario: There's a mistake in a dataset you published earlier. How would you correct or update an existing dataset on the site?

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions (after Task 2):

- How would you describe the process of updating an existing dataset
- How did you feel about version control or how users would know the data had been updated?
- What would you expect to happen next?

Observation notes:

- How does the user navigate to the dataset?
- How did they find the edit/update function? Where did they look for it first?
- Did they seem concerned about the update process in any way? Or were they confident it was all robust?

[Optional] Task 3: Respond to user feedback (5 mins)

Scenario: A user reached out with feedback that your dataset's documentation was unclear. Show what you would do to respond to this feedback.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Were you able to find where to update the details of the dataset?
- Would you like to be able to communicate with users directly using the site?
- Do you feel the site supports you in providing clear information to users? Why or why not?

Observation notes:

- Did the participant easily find out how to edit just the details of the dataset?
- Did the participant mention anything about help, guidelines or standards?

Task 4: Locate publisher help or support (5 mins)

Scenario: Let's say you need help while using the site – for instance, understanding how to fix a validation error. Show me how you would find help or support for publishers on the site.

- Where do they begin?
- What are they thinking as they look for this?

Follow-up questions:

- Was it clear where you should go for help?
- Was the help you found useful?
- Was the help where you expected to find it?

Observation notes:

- How did the participant look for help? Did they see it in the top nav, or scroll to the footer etc.?
- Did the participant prefer to contact the team directly or use the help content?

System Usability Scale

Ask participant to complete the SUS:

Discussion (5 mins)

- How would you describe your overall experience using this site? (Any particular words come to mind?)
- What did you like best about the site, and what did you like least or find frustrating?
- Would you trust the publishing process to present your data correctly? Why or why not?
- If you could change one thing about this site then what would it be?

[Thanks and close.]

Round 2

General introduction (5 min)

Thanks for taking the time to speak with me today. I'm from Storm ID, and we're working with the Scottish Government Open Data Team, to conduct research into the usability of a prototype statistics website.

[Optional] I have some colleagues on the call. They are here to observe the session and take notes. During the session, they will have their microphones and cameras off, so will be in the background as you and I chat. Are you happy for them to stay on the call to observe the session?

[Intros here or before 'First impressions']

If you're comfortable with us doing so, we'd like to record this session. This would be recording the screen, audio, and video. We ask to do this so that we can go back and check the recording when writing our report on how the session went. We don't share these recordings with anyone, and once the report is complete, the recordings will be deleted. If you'd rather we don't record, we can still continue with the session.

Are you happy for me to turn on the recording? [Turn on recording]

The session will take up to 60 minutes.

This session is entirely voluntary and if at any point you'd like to take a break or stop the session you just need to let me know. You do not need to give a reason.

We're going to ask you to share your screen, tell us what you think of the prototype, and complete a few tasks using the prototype – please just give each one your best attempt. Please talk us through your thinking as you work through each task, and don't worry if you get stuck – that's useful for us to see.

Sometimes I'll ask things that seem really obvious, and I might seem to be asking the same thing repeatedly – please be patient with me and trust me, it is all useful.

We hope you'll be comfortable giving us your honest opinion. Ultimately, feedback or comments gathered in these sessions will help us improve what we're doing. I'm interested in how you find the interface and where it could

be clearer. There are no right or wrong answers – we're testing the prototype, not you.

Towards the end I'll ask you to complete a very short survey.

[If required based on accessibility needs] If you would like, then I can help you with this by reading out the options and filling in the form on your behalf.

The survey asks you about your agreement or disagreement with the following statements:

- I think that I would like to use this website frequently.
- I found the website unnecessarily complex.
- I thought the website was easy to use.
- I think that I would need the support of a technical person to be able to use this website.
- I found the various functions on this website were well integrated.
- I thought there was too much inconsistency on this website.
- I would imagine that most people would learn to use this website very quickly.
- I found the website very awkward to use.
- I felt very confident using the website.
- I needed to learn a lot of things before I could get going with this website.

The choices for each statement are: Strongly disagree, Disagree, Neither agree nor disagree, Agree, or Strongly agree. [End accessibility needs section]

Any comments and feedback you share with me will be used only for the purposes of this research. Direct quotes or opinions will be anonymised before we include them in our report.

Do you have any questions for me before we begin?

Participant to navigate to

Cobalt Open Data Platform

or

Emerald Open Data Platform

or

Workflow Manager Prototype

and share browser window.

First impressions (5 mins)

- Take a few moments to browse the homepage.
- What is your first impression?
- What do you notice first?
- What information seems most useful to you here?
- What do you expect you can do here?
- Is there anything of interest to you on just this page?
- Anything missing which you would expect?
- What does [datasets, organisations, themes etc.] mean to you?

Specific tasks by user group follow.

Accessibility testing sessions (inc. general citizens, inquiring citizens, commercial users)

Task 1: Check the figures behind a news headline (finding data, searching) (5-10 mins).

Note: go back to the homepage.

Scenario: Imagine you came across a news headline about the differences between how much men and women are paid in Scotland. Using the site, find the official data behind this headline.

- Where do they begin?
- What are they thinking as they try to find this?

Follow-up questions:

- How easy or difficult was it to find the data to verify the headline?
- Did the information you found match what you expected?
- Is there anything else you would have wanted to help understand the headline?

Observation notes:

- Does the participant use the search bar or navigate through categories to find the data?
- Are they confused by any terminology or by the way in which results are presented?
- Do they notice details like dates or organisation name? Did these give them confidence?

[Optional] Task 2: Look up local COVID-19 case trends (finding, searching) (5-10 mins)

Note: go back to the homepage.

Scenario: You want to check recent COVID-19 case numbers in your local area. Try to find data that would help you think about this.

- Where do they begin?
- What are they thinking as they try to find this?

Follow-up questions:

- How was that experience?
- Did you find the information you were trying to find?
- What would you do next (e.g. try to find more details, compare to other areas)?

Observation notes:

- Did the participant want to view the data or download it? Or did they ignore or miss this?
- If they attempted to visualise the data, then how did they get on? Was it helpful? Why or why not?
- Where there are any signs of frustration, e.g. repeatedly clicking or scrolling?

[Optional] Task 3: Review energy efficiency (finding, searching, filtering, viewing, downloading)(10 mins)

Scenario: Let's say your company provides energy-efficiency services. You want to identify areas with poor energy efficiency to target your marketing. Use the site to find data about the energy efficiency of buildings in Scotland.

- Where do they begin?
- What are they thinking as they try to find this?

Follow-up questions:

- How easy was it to find relevant data?
- Do you think the data you found would help in this scenario? If not, then what other information would you need?
- Was any terminology confusing?

Observation notes:

- Did the participant start with search, or browse by theme?
- Did the participant struggle with any terminology?
- Did the participant use filters to narrow down e.g. area?

Task 4: Find publisher contact details (5 mins)

Note: go back to the homepage.

Scenario: You are interested in contacting the publisher of the data to ask if they have found anything interesting in their analysis. Find out how you would do this.

- Where do they begin?
- What are they thinking as they try to find this?
- Where would they typically expect to find contact information?

Follow-up questions:

- How would you typically expect to get in contact with a data publisher? (e.g. email, 'phone, contact form etc.)
- Why might you get in touch with a data publisher?

Observation notes:

- Did the participant hesitate when trying to find this information?

Task 5: Locate help or support (5 mins)

Scenario: Let's say you need help while using the site – for instance, understanding how to find data. Show me how you would find help or support on the site.

Follow-up questions:

- Was it clear where you should go for help?
- Was the help you found useful?
- Was the help where you expected to find it?

Observation notes:

- How did the participant browse for help? Did they find it in the top nav, or scroll to the footer etc.?
- Did the participant distinguish between contacting the Open Data Team and contacting a specific data publisher?

System Usability Scale

Ask participant to complete the SUS.

Discussion (5 min)

- How would you describe your overall experience using this site? (Any particular words come to mind?)
- What did you like best about the site, and what did you like least or find frustrating?
- Would you trust the data on this site is reliable? Why or why not?
- If you could change one thing about this site then what would it be?

[Thanks and close.]

Data publishers (regular and infrequent)

Workflow Manager Prototype:

Task 1: Data upload (validation, publication) (15 mins)

Scenario: You have new NRS data that needs to be published on the site (e.g. quarterly data, annual data, or one-off dataset). Show how you would add a new dataset to the platform.

- Where do they begin?
- What are they thinking as they try to find this?
- At every stage of process
    - Is anything missing?
    - What do you expect to happen at next stage?

Follow-up questions:

- Was it clear how to start the process of adding a new dataset?
- Did anything confuse you or slow you down?
- How did this compare with any other similar systems you've used?

Observation notes:

- Did the participant find the process intuitive? Did any particular part seem more challenging?
- How do they handle metadata?
- Did they try to access help or guidance?

Task 2: Correct previous release error (maintenance) (10-15 mins)

Scenario: There's a mistake in a dataset you published earlier. How would you correct or update an existing dataset on the site?

- Where do they begin?
- What are they thinking as they try to find this?

Follow-up questions (after Task 2):

- How would you describe the process of updating an existing dataset
- How did you feel about version control or how users would know the data had been updated?
- What would you expect to happen next?

Observation notes:

- How does the user navigate to the dataset?
- How did they find the edit/update function? Where did they try to find it first?
- Did they seem concerned about the update process in any way? Or were they confident it was all robust?

Task 3: Locate publisher help or support (5 mins)

Scenario: Let's say you need help while using the site – for instance, understanding how to fix a validation error. Show me how you would find help or support for publishers on the site.

- Where do they begin?
- What are they thinking as they try to find this?

Follow-up questions:

- Was it clear where you should go for help?
- Was the help you found useful?
- Was the help where you expected to find it?

Observation notes:

- How did the participant try to find help? Did they find it in the top nav, or scroll to the footer etc.?
- Did the participant prefer to contact the team directly or use the help content?

System Usability Scale

Ask participant to complete the SUS:

Discussion (5 mins)

- How would you describe your overall experience using this site? (Any particular words come to mind?)
- What did you like best about the site, and what did you like least or find frustrating?
- Would you trust the publishing process to present your data correctly? Why or why not?
- If you could change one thing about this site then what would it be?

[Thanks and close.]

Appendix C (updated user needs catalogue)

User groups

User group	Description	Examples	Frequency of use	Technical ability
General citizen	Occasionally interested in what's behind the headlines that affect them.	non-specialist, general public	Low	Low
Inquiring citizen	Maintains a keen interest in specific issues.	charity, think-tank, third sector	Medium	Low-Medium
Commercial user	Interested in specific datasets that are useful for achieving business objectives.	private sector, e.g. energy company, bank	Medium-High	Low-Medium
Technical/expert user	Working with and talking about data are part of their daily lives.	statisticians, economists, academics, data journalists	High	High
Public sector/policy influencer	Researching specific issues and using statistics as evidence to inform others.	councils, health boards, government policy-maker	Medium-High	Medium
Data publisher (regular and infrequent)	Collating and providing data to be published on the site.	local authority, government, statisticians responsible for providing data	Low-High	Medium-High

This represents only a small update to the Discovery user needs catalogue, as a review of this suggests the existing needs remain valid.

Additions are highlighted with the word – NEW

User needs catalogue for General Citizen users

I need/want/expect	So that	Topic	Priority	High-level user need
A simple and clear homepage	I can easily find my way around the site without feeling overwhelmed.	Navigation	High	Find and Discover
Easily navigate the website to find relevant datasets	I can quickly find datasets without feeling overwhelmed.	Navigation	High	Find and Discover
A search bar in a prominent position on the homepage	I can start looking for data immediately without navigating through multiple menus.	Search	High	Find and Discover
An efficient search function with auto-suggestions	I can find the data I need even if I'm unsure of the exact search terms.	Search	High	Find and Discover
Simple options for browsing data	I can find relevant datasets quickly without navigating complex menus.	Navigation	High	Find and Discover
An intuitive, simple process for downloading datasets	I can quickly get the data I need without going through multiple steps.	Data	High	Access and Download
Consistent gov.scot look and feel	I can trust this is an official Scottish Government website.	Content	High	Other (non-functional)

I need/want/expect	So that	Topic	Priority	High-level user need
Familiar, intuitive design patterns and functionality	I need minimal guidance to start using the site.	Content	High	Other (non-functional)
Guidance on how to use the site	I can quickly understand the basic functions and navigation.	Help	Medium	Support and Feedback
Easy access to support and help resources	I can quickly find guidance if I encounter any issues.	Help	High	Support and Feedback
A glossary of terms accessible from every page	I can easily understand technical jargon and unfamiliar terms.	Help	Low	Support and Feedback
Plain language explanations of statistical terms	I can understand the data without needing specialised knowledge.	Help	Medium	Understand
Step-by-step instructions for common tasks	I can perform actions like searching for data and downloading datasets without confusion.	Help	High	Support and Feedback
Visual aids such as diagrams and videos	I can understand processes better through visual, contextual learning.	Content	Low	Understand
Quick access to recent and frequently used datasets	I can understand what's new and what other users are finding useful.	Navigation	Medium	Find and Discover
See status indicators when a page, dataset or preview is loading	I know that the site is working	Navigation	Low	Support and Feedback

I need/want/expect	So that	Topic	Priority	High-level user need
A way to provide feedback on my experience	My suggestions can help improve the site for other new users.	Help	Low	Support and Feedback
Access to a user-friendly FAQ section	I can find answers to common questions without contacting support.	Help	Low	Support and Feedback
Clear notifications about site updates or changes	I am aware of new features or modifications that might affect my use of the site.	Help	Low	Understand
Clear contact options for support	I can quickly get help if I encounter any issues or have questions.	Help	Medium	Support and Feedback
Tooltips (or equivalent) that explain features as I use them	I can get immediate help and understanding while navigating the site.	Help	Low	Support and Feedback
The site to be accessible on mobile devices	I can access the site like I would any other.	Content	High	Other (non-functional)
Links to related datasets - NEW	I can better understand context	Content	Low	Find and Discover
Key indicators/statistics about my local area - NEW	I can find out more about my local area	Content	Medium	Visualise

User needs catalogue for Inquiring Citizen users

I need/want/expect	So that	Topic	Priority	High-level user need
Access to data that is socially relevant and up-to-date	I can check the facts and figures behind the headlines.	Data	High	Access and Download
Case studies or examples of data use	I can see how others have benefited from using the data.	Content	Low	Understand
An efficient search function with advanced features and filters	I can narrow down my search to find the most relevant datasets.	Search	High	Find and Discover
Access to comprehensive help and guidance	I can fully understand how to utilise the available data.	Help	High	Support and Feedback
The ability to download datasets in various formats	I can use the data in different applications and software.	Data	High	Access and Download
Up-to-date and regularly refreshed data	I can rely on the data for current projects and research.	Data	High	Access and Download
A mechanism to request specific data	I can get access to data that is currently not available but I see as important.	Data	Low	Support and Feedback
Easy access to contact information for data owners	I can ask questions and get clarifications when needed.	Data	High	Support and Feedback
Notifications about new datasets or updates	I can stay informed about new data that could be useful for my purposes.	Data	Medium	Find and Discover
Clear licensing information - NEW	I know whether or not I can reuse the data with confidence	Content	Medium	Understand

User needs catalogue for Commercial users

I need/want/expect	So that	Topic	Priority	High-level user need
Access to large and comprehensive datasets	I can perform detailed analyses and make informed business decisions.	Data	High	Find and Discover
Reliable and up-to-date data	My business decisions are based on the most current information.	Data	High	Understand
Advanced search capabilities	I can quickly find specific data relevant to my industry.	Search	High	Find and Discover
Data available in multiple formats	I can integrate it into my business intelligence systems.	Data	High	Access and Download
Detailed metadata and data documentation	I can understand the context and limitations of the data.	Data	High	Understand
Tools to preview the data on the site	I can check the dataset is useful to me before downloading it.	Data	Medium	Visualise
To be able to automate data retrieval	I can regularly update my analyses with the latest data.	Data	Medium	Access and Download
Clear licensing information for data use	I can ensure my use of the data complies with legal requirements.	Content	Medium	Understand
Responsive technical support	I can quickly resolve any issues that arise while using the data.	Help	High	Support and Feedback

I need/want/expect	So that	Topic	Priority	High-level user need
Access to historical data	I can analyse trends and make long-term strategic decisions.	Data	High	Access and Download

User needs catalogue for Technical/Expert users

I need/want/expect	So that	Topic	Priority	High-level user need
Quick access to raw and granular data	I can perform detailed and custom analyses for my research.	Data	High	Access and Download
Comprehensive and detailed metadata	I can understand the methodology and context of the data.	Data	High	Understand
Advanced search and filtering options	I can efficiently find specific datasets relevant to my work.	Search	High	Find and Discover
A well-structured, modern, maintained API to access the data	I can automate data retrieval and integration into my analysis workflows.	Data	High	Access and Download
Tools to preview the data on the site	I can check the dataset is useful to me before downloading it.	Data	Medium	Visualise
Version control for datasets	I can track changes and updates to the data over time.	Data	Medium	Understand
Access to data in various formats (CSV, JSON, XML)	I can use the data with different analysis tools and software.	Data	High	Access and Download
Partition datasets before downloading to create smaller, relevant files	I can download and work with the parts of the data I need without specialist software and hardware.	Data	Medium	Access and Download
Robust documentation and user guides	I can fully understand how to use the site and the data it provides.	Help	High	Support and Feedback

I need/want/expect	So that	Topic	Priority	High-level user need
Comprehensive API documentation, examples, and support	I can fully understand how to programmatically access the data.	Help	High	Support and Feedback
The ability to provide feedback on data quality	I can help improve the accuracy and reliability of the data.	Content	Medium	Support and Feedback
Responsive support from data owners	I can get help with complex questions or issues related to the data.	Data	Medium	Support and Feedback

User needs catalogue for Public sector/Policy influencer users

I need/want/expect	So that	Topic	Priority	High-level user need
Access to policy-relevant datasets	I can make informed decisions relating to public services and policies.	Data	Medium	Find and Discover
Advanced search and filtering options	I can quickly find data relevant to specific policy questions.	Search	High	Find and Discover
Access to up-to-date and accurate data	My policy decisions are based on the most current information.	Data	High	Understand
A release calendar	I can better contextualise my analyses and plan ahead.	Data	Medium	Understand
Visual aids like charts and maps	I can easily present data to stakeholders and decision-makers.	Content	Low	Visualise
Clear explanations of data sources and methodologies	I can understand the reliability and limitations of the data.	Content	Medium	Understand
Access to data at various geographic levels	I can assess regional and local impacts of policies.	Data	High	Access and Download
Access to historical data	I can analyse long-term trends and outcomes of past policies.	Data	High	Access and Download

I need/want/expect	So that	Topic	Priority	High-level user need
Collaborative tools to share datasets with colleagues	We can work together more effectively on policy development and evaluation.	Content	Low	Access and Download
Links to related datasets -NEW	I can understand the dataset in context	Content	Low	Understand

User needs catalogue for Data publisher (regular) users

I need/want/expect	So that	Topic	Priority	High-level user need
A clear and efficient process for submitting data	I can easily upload and update datasets without unnecessary delays.	Publishing	High	Run Publishing Task
An intuitive interface for uploading and updating datasets	I can complete these tasks efficiently without needing external help.	Publishing	High	Create Publishing Task
Detailed guidelines on data formatting and standards	I can ensure my data meets the site's requirements.	Publishing	High	Create Publishing Task
A detailed guide on the dataset submission process	I can confidently upload my data without errors.	Help	High	Create Publishing Task
Tools to validate data before submission	I can catch and correct errors before the data goes live.	Publishing	High	Manage Publishing Task
The ability to manage multiple datasets	I can efficiently handle my organisation's data publishing needs.	Publishing	Medium	Manage Publishing Task
Version control for my datasets	I can track changes and revert to previous versions if necessary.	Publishing	High	Manage Publishing Task
Real-time feedback on data uploads, e.g. automated QA	I can immediately correct any issues and ensure successful submissions.	Publishing	Low	Manage Publishing Task
Access to historical submissions	I can reference past datasets and maintain consistency.	Publishing	High	Manage Publishing Task

I need/want/expect	So that	Topic	Priority	High-level user need
Responsive technical support	I can quickly resolve any issues that arise during the submission process.	Help	High	Support and Feedback
To easily collaborate with my team during the submission process	We can work together efficiently and ensure the quality of our data.	Publishing	Low	Run Publishing Task
To manage permissions and access within my team	I can control who can edit and publish datasets.	Publishing	Low	Manage Publishing Task
The ability to schedule data uploads	I can manage my workload and ensure data is published at the right time.	Publishing	Medium	Run Publishing Task
To track the usage and downloads of my datasets	I can understand how my data is being used and its impact.	Publishing	Medium	Manage Publishing Task
Access to feedback from users	I can improve the quality and relevance of the data I publish.	Content	Medium	Support and Feedback
A reliable system with minimal downtime	I can maintain my publishing schedule without disruptions.	Publishing	High	Other (non-functional)

User needs catalogue for Data publisher (infrequent) users

I need/want/expect	So that	Topic	Priority	High-level user need
A quick refresher guide available on login	I can quickly get up to speed on how to use the site after periods of inactivity.	Help	High	Create Publishing Task
Reminders and notifications about upcoming submission deadlines	I can ensure timely publication of my data.	Content	Medium	Manage Publishing Tasks
Responsive technical support	I can quickly resolve any issues that arise during the submission process.	Help	High	Support and Feedback
Plain language labelling on the publishing platform - NEW	I understand what each step means and can complete the process unaided	Content	High	Support and Feedback
A preview of how the dataset page will look - NEW	I can publish confidently and fix issues early	Publishing	Medium	Run Publishing Task
Clearly marked required fields and inline help - NEW	I can complete publication without guesswork	Publishing	High	Run Publishing Task

This publication is available at **www.gov.scot**

Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80643-405-3 (web only)

Published by The Scottish Government, December 2025

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1671326 (12/25)

w w w . g o v . s c o t